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ABSTRACT

The costs of assessment, which was identified as a condition for achieving excellence in undergraduate education by the Study Group on the Conditions of Excellence in American Higher Education, are addressed. Two questions considered deal with (1) the unit of analysis and (2) what to count. The unit of analysis can be the individual student, programs or curricula, or the institution as a whole. Cost calculations vary (direct, indirect, full, average, marginal, opportunity costs); it is most important to determine the level of regular investment the institution must make in addition to ongoing activities. It is assumed that an institution will adopt an explicit program for assessing instructional effectiveness, in which various efforts are coordinated and supported by a visible, staffed office. Some typical direct costs (instrument costs, administration costs, analysis costs, coordination costs) associated with establishing such a comprehensive program are derived. Constructed cost estimates are provided for four typical institutional types (small private liberal arts college, public major research university, regional comprehensive university, and community college). Each constructed cost estimate is anchored by actual data from institutional experience. Commonly used commercial instruments available for assessing student cognitive growth, reactions to college, and experiences after graduation are described in an appendix. (LB)

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The Costs of Assessment

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I. Introduction

The report of the Study Group on the Conditions of Excellence in American Higher Education, Involvement in Learning: Realizing the Potential of American Higher Education, identified assessment and feedback as one of three conditions for achieving excellence in undergraduate education. The Study Group argued "that institutions should be accountable not only for stating their expectations and standards but for assessing the degree to which those ends have been met" (p. 21). The underlying theme is that acquisition and use of information about performance is a necessary ingredient in any attempt to foster learning and self-improvement. We all recognize the legitimacy of this argument when applied to students. Most accept the notion that such evaluations need to be formative as well as summative. While we recognize that the assessment process may be implemented badly at times, there is substantial agreement that student-level evaluations ought to guide the teaching/learning process.

The Study Group and Ewell in his book The Self-Regarding Institution (1984) go further. They argue that what holds true for assessing students also holds true in a broader context. Specifically they argue that the road to improvement of courses, programs, and indeed the institution itself, involves regular collection of information on institutional and program effectiveness, and the use of such information as the basis for improvement. Intellectually and conceptually, the argument has the ring of reason. We can readily accept the notion that information is knowledge and that we ought collectively to be more knowledgeable about our institutions and the programs they house. Ergo, assessment information about institutions and programs, as well as individual students, is desirable.

On a more practical level, however, the recommendations of the Study Group with regard to assessment and feedback are often greeted with skepticism. Indeed, the level of skepticism itself is revealing; it stems primarily from unfamiliarity rather than from unfortunate experience. The skepticism we have observed surfaces in the form of two concrete questions. First, "Can assessment actually be accomplished; is it feasible?" As a technical question, this is being answered in the affirmative. Evidence to support this conclusion is drawn from a growing body of institutional experience with wide-ranging assessment programs. But the second question is equally pragmatic: "How much does it cost?" The underlying tone of the question reflects a conviction that the costs are high.

We address the latter question in this paper. In the following section, a simple conceptual schema is presented to more clearly delimit the dimensions of the question. In the balance of the paper, we present estimates of the costs of assessment for different types of institutions. Supporting information is provided in the appendices.

II. An Analytic Framework

To properly address the costs of assessment, it is important to pose and answer two distinct questions. A first question is "the costs of assessing what?"--a question of unit of analysis. A second question is "what costs?"--a question of what to count. These two questions are treated separately below.

A. Unit of Analysis

The unit of analysis with which we are most traditionally comfortable in assessment is the individual student. In the normal course of events, the individual student is subjected to a wide variety of assessments in the

process of being admitted to, and making progress through, an institution. Students take ACT and SAT tests as part of the application process. Incoming freshmen commonly take a battery of institutional tests for placement purposes immediately upon arriving at campus. Most pervasive of all assessment activities are the many tests that students take in each and every course in which they are enrolled. By such means, we collect mounds of assessment data on students. Our facility for turning this data into information, however, remains limited. But we do at least gain enough information from these activities to convince ourselves that individuals do or do not deserve to be certified as academically worthy and eligible to receive a degree, diploma, or certificate.

Beyond the student, the units of analysis with which we are primarily concerned are the program or curriculum and the institution as a whole. With regard to individual programs or curricula, assessment questions abound. The central question is "Are the students who have completed the program emerging with the intended level of knowledge and skills, and are they proceeding to fulfill intended roles in desirable ways?" Corollary questions have to do with attractiveness of the program to particular groups of students, and student satisfaction with the educational experience provided by the program. Each of these questions can be illuminated by periodic assessment of the outcomes of the program. While many of the basic data needed to address these questions are the same as those needed to assess individual student development, the ways in which these data are analyzed will be different. For program evaluation, the primary need is to look at the collective performance of a particular body of students (or a representative sample thereof). This means examining not

only mean or median performance but also investigating the nature of variations around these central tendencies and the reasons for them.

Finally, comprehensive assessment requires information about the performance of the institution as a whole. It is at this level that questions of feasibility become most widespread and acute. As a consequence, it is at this level that assessment is least frequently conducted. Given a wide array of outcomes attributable to almost any college or university--and given that the typical institution tends to claim credit for contributions to growth along all of these dimensions--there is an understandable inclination in the words of one of the Study Group members to "measure everything that moves." Given this perspective, it is easy to see how questions of cost emerge as a real issue. To estimate the costs of assessment, it is first necessary to somehow deal with the appropriate scope of assessment. With this requirement in mind, we want to emphasize that the essence of institutional assessment is to "measure your mission." Adherence to this simple principle can help ensure that institutional assessment is a carefully focused activity. Posing the question in this way also creates the requirement that assessment be carefully tailored to reflect the distinctive aspects of each institution. If the institution in question is primarily oriented toward professional and occupational training, appropriate assessment will be focused upon the documented success of graduates in the professions and occupations for which they were trained. For liberal arts colleges in contrast, primary assessment strategies should examine student development along the dimensions of general knowledge and general skills. In major research universities assessment may be concentrated on student success in the major. There are, of course,

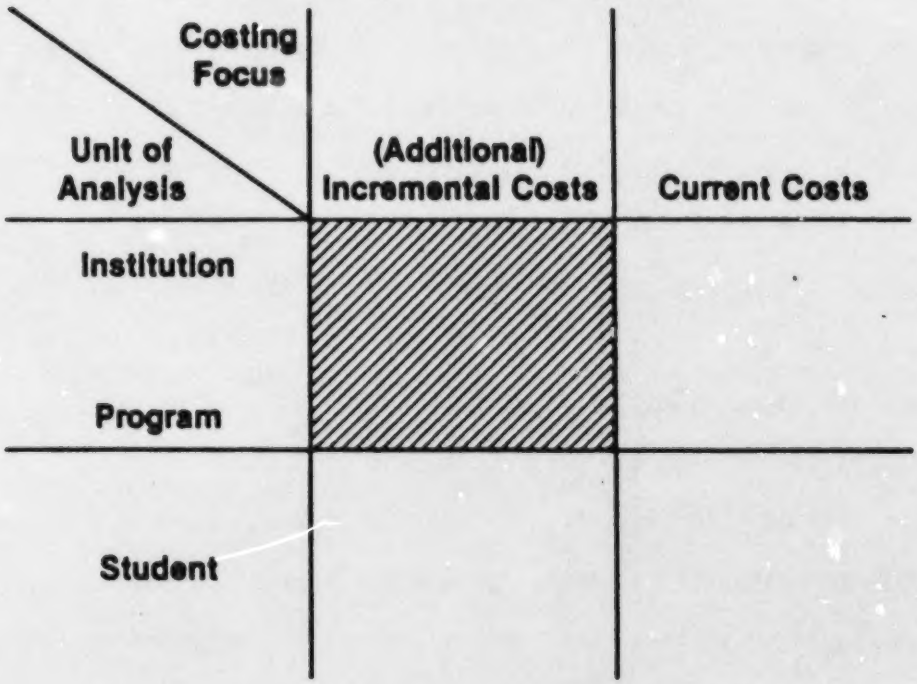
variations on all of these themes including consideration of student satisfaction with the experience, as well as educational "value-added."

B. The Costs Considered

There are innumerable concepts of and ways to calculate costs. Among them are direct costs, indirect costs, full costs, average costs, marginal costs, and opportunity costs. The appropriateness of each of these approaches to costing is determined by the use of the resulting information. Consequently, the real question for us is not simply "What is the cost of assessment?" Because the issue is usually raised in a managerial or resource allocation context, the question becomes, "How much more money do we have to spend to put in place an assessment program that is appropriate to our needs?" Using this notion as a guide, we have passed over attempts to estimate the cost of student assessments already undertaken as a regular part of the student's coursework. While it would be possible to calculate the actual proportion of faculty instructional effort already attributable to in and out of class assessment activities, this would yield information without a purpose. It is more important to attempt to determine the level of regular investment the institution must make in addition to these ongoing activities. This is an incremental or marginal cost. It is recognized that the dollars being currently spent for assessment can often be spent more effectively and that assessment programs can often be improved at no added cost. Such reallocation issues, however, are not within the domain of this paper.

Putting these two dimensions together results in a matrix that displays major cost considerations as follows:

Dimensions of the Topic



The portion of assessment costs we discuss in the balance of this paper is indicated by cross-hatched areas in this diagram. In the following sections we provide estimates of typical incremental costs for establishing and maintaining institutional and program level assessment programs. At best, these estimates are exceedingly rough. In spite of their limitations, however, they do provide reasonable ballpark figures regarding the level of costs that might be expected by an institution embarking on a focused assessment program.

III. Estimating Costs of an Institutional Assessment Program

Estimating the actual new costs of establishing an assessment program at a given college or university can be a complex undertaking. Partly this is because most institutions already collect some data on student achievement and program effectiveness. Creating a comprehensive assessment program may thus involve coordinating a number of activities already paid for. An additional difficulty is the level of analysis at which assessment takes place. While data gathering on institutional effectiveness remains relatively rare, all institutions collect some data on individual student performance. As argued above, the kinds of data routinely collected on individual students at most campuses may or may not be consistent with good pedagogy. But in general, changing assessment methods and policies at this level will not entail significant additional costs.

Because of these difficulties, several caveats are necessary before embarking upon some actual cost estimates. First, the estimates will be based primarily on direct costs--those costs incurred by fielding new test and survey instruments, and of making use of the results. While a variety of indirect or overhead costs can be considered (for example, professional time spent drawing the implications of assessment results, faculty and administrative time spent

reviewing programs in the light of assessment data, and the like), these will vary so greatly that concrete estimates will be problematic.

A second caveat is that we will confine our estimates to the institutional and program levels of analysis. As argued previously, evaluations of faculty teaching effectiveness and of individual student performance are (or ought to be) part of the standard set of mechanisms in place in any institution. While resources devoted to these activities may not currently be well spent, new resources will rarely be needed to achieve effectiveness.

A final assumption is that an institution will adopt an explicit program for assessing instructional effectiveness. This means that various related instructional evaluation efforts are centrally coordinated, and are supported by a staffed, visible office. Establishing such an assessment program, it is important to note, may involve considerable reallocation of existing, funded functions. For example, most institutions already fund a testing center, an institutional research office, or an academic planning office. Functions of each of these existing offices are commonly included in a comprehensive assessment program. Furthermore, many individual data gathering efforts included in assessment programs may already be in place in one or more of these locations. Many institutions, for example, regularly administer student surveys such as the Cooperative Institutional Research Program (CIRP), or engage in program completer or withdrawal surveys. Many institutions regularly assess student abilities for placement purposes on entrance. Finally, many institutions regularly administer professional or pre-professional certification tests that assess particular skills gained in the course of instruction.

Given these assumptions, we will focus the following discussion on deriving some typical direct costs associated with establishing a comprehensive institutional assessment program. The discussion will consist of three parts. First, each major ingredient of direct cost will be identified and discussed. Secondly, constructed cost estimates will be provided for four typical institutional types--a small private liberal arts college, a public major research university, a regional comprehensive university, and a community college. Each constructed cost estimate was anchored by actual data from institutional experience. Finally, in the light of both the conceptual and empirical discussions, some conclusions on cost estimation will be offered.

A. Cost Elements for Assessment Programs

In constructing assessment programs, most institutions incur costs in four basic areas. First, assessment instruments (tests and surveys) must be constructed locally or must be purchased from an outside vendor. Secondly, these instruments must actually be administered to students. Thirdly, the resulting data must be analyzed and disseminated. Finally, the assessment effort itself must be coordinated. Each of these costs is driven by different parameters, and by the kinds of choices that institutions may make within each cost element.

1. Instrument Costs

Various kinds of cognitive tests and student surveys form the basis for any assessment data gathering effort. Before they can be fielded, tests and instruments must first be developed or obtained. If they are developed locally, costs are incurred by faculty and measurement specialists in constructing the test or survey. After initial

development, such instruments can be produced on a regular basis--generally at lower cost than comparable commercial instruments. The alternative to constructing instruments locally is to make use of one or more commercially available tests and surveys. These are obtained through purchase--generally on a per instrument basis. A listing of the direct costs of many available commercial testing and survey instruments is provided in Appendix A.

Because of the difficulties involved, relatively few institutions choose to design their own cognitive tests. Generally, local achievement tests are developed as senior assessments in fields not currently covered by such instruments as the Graduate Record Examination (GRE), the College Level Examination Program (CLEP), or by various professional certification and pre-professional tests. Occasionally, local examinations will be developed because faculty feel that existing commercial instruments do not adequately cover the field as taught in their own curricula. Developing good subject area examinations can be a time-consuming exercise--often requiring up to 100 hours of faculty time, and additional resources are required for pilot testing the instrument and for subjecting individual test items to careful review by testing/measurement specialists. One major research university is currently undertaking development of twenty such examinations at a budgeted cost of $2,000 each.

Development of local surveys--either of currently enrolled students or of former students (graduates and dropouts)--is much more common than development of local cognitive assessment instruments. In general, good survey instruments can be designed for less than the costs

associated with cognitive tests. Some economies result from the fact that many common models are available. References such as McKenna (1983), Pace (1975), and California Community Colleges (1984) provide excellent and accessible lists of items commonly included on student surveys.

Commercial tests and surveys are generally purchased on a per unit basis. For cognitive tests and examinations, the unit price includes scoring as well as the price of the instrument. Individual prices vary considerably from a low of $7/exam for instruments such as the ACT Assessment Entrance Examination, through $29/exam for the GRE, to a high of $43/exam for such instruments as the National Teacher Examination administered by ETS. In some, but not all cases, multiple purchase discounts are available for institutions.

Commercial student surveys are generally available for individual purchase with or without associated processing and analysis services. Prices for individual instruments range from a low of .15/survey to approximately $1/survey. When analysis services are used, total costs average $3-$5 for each completed questionnaire. In addition, institutions can purchase a tape of responses for between $40 and $150, and can obtain comparative reports consisting of responses from other institutions that have used the instrument.

2. Administration Costs

Once in hand, tests and surveys must be administered to students. In most cases, test administration will be a straightforward, in-class exercise, but even so, considerable administrative costs may be

incurred. For cognitive tests, proctors must be employed for each test location. For some types of tests (for example, the ACT College Outcomes Measures Project) special video and audio equipment must be available and operated. If special testing sessions are scheduled, students must be notified where they should appear, and follow-up procedures put in place to ensure that they do in fact appear. Finally, costs will be incurred in recording results, and if desired, in sending test results directly to students.

Some of the same procedures will be typical of in-class survey administration. Generally, however, proctors are less needed for student surveys, and survey questionnaires take less time to complete than examinations (an average of 10 to 20 minutes as compared to the typical three-hour length of most examinations). Moreover, many student surveys can be administered in already available settings--for example at student registration or during orientation programs. Because of the ready availability of such mechanisms, entering student questionnaires are the kinds of survey instruments most easily administered directly to students.

For program graduates or withdrawing students, or for currently enrolled students who may be difficult to reach in an available "captive" setting, mailed survey administration will be typical. Mailed survey costs vary with the number of respondents to be reached, the number of mailings undertaken to maximize response, and the estimated response rate. In order to obtain acceptable response rates, most institutions utilize more than one mailing, and often supplement results with telephone follow-ups of non-respondents. Most sources

recommend the use of first-class postage on both mailout and return envelopes (Dillman, 1982). Costs for recording and tabulating responses should also be included in any analysis. Based upon such parameters, typical costs for conducting mailed surveys will average $1.50 - $3 per completed instrument.

3. Analysis Costs

As noted above, commercial cognitive tests include analysis and processing costs with the cost of the instrument. Scoring and analysis services are also available for most commercial surveys. These services include costs for data entry, for computer analysis, and for production of a simple frequency or cross-tabulation report. In many cases, however, available data will need to be further analyzed for policy purposes. In the case of test/examination data, individual student performance results may be correlated with student characteristics, with course-taking patterns, or with other elements of the institutional experience. This entails creating data sets which make use of a variety of data elements beyond simple test performance. The same is true of student survey data. In this case, tapes of questionnaire responses--generally available from the providers of the instruments--can be locally analyzed using an available statistical package. All such exercises will entail both personnel and data processing costs.

In the case of locally developed tests and surveys, analysis designs will have to be created from scratch. Like instrument design, this is a one-time cost, but it can be considerable. In most cases, a set of analysis routines must be written using a standard statistical package

(for example, SPSS or SAS) or using a common programming language. Similarly response coding schemes must be devised and, if applicable, machine scoring procedures using mark-sense equipment established. In the initial stages, considerable care must be taken to develop error-checking procedures and methods for handling missing, incomplete or contradictory information. Once such procedures are put in place, however, ongoing costs for data analysis will be minimal, involving only personnel costs and computer time.

4. Coordination Costs

Establishing a comprehensive program of institutional assessment may require investments beyond the direct costs associated with procuring, administering, and analyzing a variety of data-gathering instruments. Such comprehensive programs are centrally administered, and involve coordination among many kinds of data collection and analysis activities. Indeed, the most effective such programs are located in distinct, specially created offices--for example, Alverno College's Office of Research and Evaluation, and the University of Tennessee, Knoxville's Learning Research Center.

Costs associated with establishing an office of this kind are those that one would expect. They include personnel costs for new professional and support staff, costs of office space to house these personnel, and ongoing operating expenses. In estimating such costs, it is important to attempt to isolate the new functions that such offices will fulfill from those associated with the existing, previously funded activities that such offices assume on establishment. For example, overseeing an annual alumni survey effort and writing data

reports on this activity may already be part of an institutional research responsibility, and may be built into the cost structure of a new assessment office. Similarly, existing diagnostic testing and measurement activities may be folded into such an office's new responsibilities. Generally, however, such functions as administering comprehensive examinations in general education, or working with faculty to develop local survey and test instruments are not covered in the existing cost structure.

As a result of the extreme variation in current practice, any estimates of coordination costs will be approximate at best. In each of the cases discussed below, an attempt is made to disaggregate these costs so that only the new costs associated with establishment of an assessment program are counted.

B. Constructing Tailored Institutional Cost Estimates

Because institutions vary widely in size, programs, and clientele, appropriate assessment programs will vary as well. A small, private, residential, liberal arts college will probably emphasize general education in its instructional mission to a degree not typical of a community college or a large research university. Consequently, it will appropriately concentrate its data gathering and analytical resources on assessments of liberal learning outcomes. In contrast, community colleges will most likely concentrate on job success and senior institution placement in designing an assessment program. Moreover, the clientele of the small liberal arts college will be much more conducive to administering tests and surveys in classroom settings than will be the case for the more dispersed community college population. As a result, methods for actually

administering tests and surveys will vary considerably among types of institutions.

For illustration, we have constructed typical assessment programs for four types of institutions. They include (1) a private liberal arts college with a traditional, residential student population of approximately 1000 students, (2) a major public research university with a total student population of approximately 25,000 students (including 18,000 undergraduates), (3) a regional comprehensive public university with approximately 5,000 residential and commuter students, and (4) a mid-sized community college with a headcount enrollment of approximately 15,000 students enrolled in occupational, transfer, and community service programs.

For each institution, cost estimates for developing an assessment program have been produced as follows. First, a choice of which assessment dimensions should be emphasized was made based upon presumed instructional mission. Second, a typical selection of instruments was made for each case, and the direct costs for instrument procurement estimated using published cost data for commercially available instruments and common institutional experience for locally constructed instruments. Third, a choice of administration and analysis methods was made based upon expected student characteristics. Finally, an estimate of coordination costs is provided on the basis of the experience of existing data gathering and analysis investments in like institutions. In all four cases, actual data on costs incurred by similar institutions were used to support the typical programs constructed.

All estimates were constructed by means of a specially designed microcomputer template using the Lotus 1-2-3 Spreadsheet program. The template embodies available cost data on eight commercial test and survey instruments as well as routines for estimating the costs of designing local test and survey instruments, of administering tests and surveys in classroom and mailed formats, and overhead costs associated with establishing an assessment office. The template contains on-line instructions for creating cost estimates, and the steps involved in using it are described in Appendix B.

Case 1 - Private Liberal Arts College

Case 1 is a small private liberal arts college with a total enrollment of approximately 1000 students. The student body is "traditional", with over 95% attending full-time, and over three quarters in residence--living either in dormitories or in nearby private housing. The curriculum is also traditional--including a recently reinstituted general education core program, and a typical list of undergraduate majors. There are no explicit professional or pre-professional programs, although many students go on to professional or graduate training.

Assessment in this case is concentrated on the gain or "value-added" of the total college experience--particularly its general education component. Because of the college's mission, the faculty have opted for administering the ACT-COMP Composite Examination to incoming freshmen and to graduating seniors. They have also opted to make maximum use of the COMP through a consulting visit each year in which ACT staff work with faculty in interpreting scores. The college has

found that these visits are an important faculty development tool in addition to the information provided by the examination itself.

The college already participates in the CIRP freshman survey to a limited degree, and the decision was made to supplement the sample to include the entire esimated freshman class (300 students). At the same time, interest in the involvement of currently enrolled students on campus led to a decision to administer the Pace College Student Experiences (CSEQ) survey to a selected sample of all students (150) each spring. Finally, the college conducts an alumni study every three years, covering the last three graduating classes. The college plans eventually to develop its own survey, but meanwhile is using the ACT-ESS alumni survey which they supplement with 10 local questions of their own.

ACT-COMP testing occurs in classroom settings with dorm counselors serving as proctors. Each student receives an announcement of the test date, and is provided with his or her own results after scoring. CIRP and CSEQ surveys are administered in class, or through campus mail. The major survey effort is the alumni survey, but the small numbers of actual graduates each year do not entail a major cost. The response rate averages 75% for these surveys.

To coordinate the testing program, the college has appointed a junior faculty member in Psychology as an assessment director at .35 FTE. She is assigned a 1/3 time secretary to handle announcements, record survey results, etc. Overhead costs are already absorbed by the office of the Dean of Faculty to whom the assessment director reports.

Total estimated costs for Case 1 are documented in Table 1 below.

Table 1

Case 1 - Private Liberal Arts College

Instrument Costs		
300	Freshman General Education Exams (ACT-COMP)	$4,500.00
150	Senior General Education Exams (ACT-COMP)	2,250.00
150	Senior Activity Inventories (ACT-COMP)	525.00
300	Freshman Surveys (CIRP)	415.00
150	Current Student Surveys (Pace CSEQ)	337.50
150	Alumni Surveys (ACT-ESS)	147.50
Administration Costs		
	In-Class Test Administration	
	Proctors, etc.	342.00
	Announcements, etc.	177.50
	Mailed Survey Costs (2 mailings)	193.62
Overhead/Analysis Costs		
	ACT Comp Consulting Visit (Fee + Travel)	1,375.00
	CIRP Data Analysis	150.00
	Testing/Measurement Specialist (.35 FTE)	9,625.00
	Secretary/Clerk (.35 FTE)	5,775.00
	Staff Benefits	3,388.00
	TOTAL	$29,201.12

Case 2 - Major Public Research University

The second case is a major public research university with a total enrollment of over 25,000 students--including about 18,000 undergraduates. Faculty make considerable research contributions to their own disciplines, and concentrate much of their teaching energy on graduate instruction. Most introductory courses are lecture classes, and are partially staffed by graduate teaching assistants. Most undergraduate students attend full-time, and about two-thirds are residential. Attrition rates are significant, but about 65% of

entering students complete their degrees. Professional schools account for approximately 60% of undergraduate enrollment.

Because of its emphasis on professional and pre-professional study, much assessment effort has gone into testing in the major field. Graduates of about 10 programs per year are tested using available standardized test instruments. This year, 450 students are to be tested using a variety of GRE Field Examinations, and 360 students are to be tested using pre-professional examinations such as the National Teacher Examination (NTE) and the AICPA exam. In addition, the institution is evaluating general education using the ACT-COMP Objective Test in a test-retest format for freshmen and seniors. Like Case 1, the institution has budgeted a consulting/faculty-development visit in conjunction with the COMP.

To examine student life, the university has designed its own survey, using faculty expertise. The survey is administered to a stratified random sample of currently enrolled students in the spring. Because of the size of the campus and the characteristics of the sample, a mailed format used to administer the survey, and approximately 65% response rates are obtained.

To coordinate the testing program, the university has staffed an existing student research office with two new staff members--a testing specialist and a secretary. Existing senior staff in the testing office are also used in interpreting test results and to work with individual program faculties on improving curricula. Because many of the fields offered by the unversity are not now covered by an available standardized senior-level examination, testing center personnel are

expected to begin working with program faculty to design local achievement tests. Approximately $2000/test costs are expected for this activity.

Table 2 below presents total estimated costs for this case.

Table 2

Case 2 - Public Major Research University

Instrument Costs		
2500	Freshman General Education Exams (ACT-COMP Objective Test)	$15,000.00
1700	Senior General Education Exams (ACT-COMP Objective Test)	10,200.00
450	Senior Field Exams (GRE)	13,050.00
360	Senior Field Exams (Professional and Pre-Professional)	9,270.00
	Development Cost for Student Survey	5,200.00
2025	Surveys (Production and Scoring Cost)	518.75
Administration Costs		
	In-Class Test Administration	
	Proctors, etc.	1,826.00
	Announcements, etc.	2,077.00
	Mailed Survey Costs (2 mailings)	1,957.00
Overhead/Analysis Costs		
	ACT Comp Consulting Visit	1,375.00
	ACT-COMP Data Tape	20.00
	Testing/Measurement Specialist (1 FTE)	27,500.00
	Secretary	16,500.00
	Staff Benefits	9,680.00
	Office Expenses	8,400.00
	TOTAL	$122,573.75

Case 3 - Regional Comprehensive University

Case 3 is a public regional comprehensive university enrolling approximately 5500 students including 4500 undergraduates. Like many of its type, the university is a former teachers' college which became a comprehensive university in the early 1970's. In addition to liberal arts disciplines, the university now offers a range of professional subjects through the masters level. These are dominated by education and business which together enroll about half the student body. Forty percent of the undergraduate student body attend part-time, and about two-thirds commute. The university does not currently commit significant resources to academic administration and support, and is proud of its tradition of "low overhead."

Like case 2, a primary emphasis of the university is to ensure that graduating seniors have received adequate training in the major field. Therefore, the choice has been made to administer standardized senior examinations to the graduates of each department every five years. GRE or pre-professional examinations are used where possible, and this year approximately 120 graduating seniors will be tested using a variety of instruments. All but three fields that the university offers are currently covered by an existing standardized examination.

The university also has a commitment to building basic skills, but the emphasis on general education is not sufficient to justify the expense of an instrument such as ACT-COMP. Therefore the faculty have decided to examine "value-added" using the ACT Assessment administered to entering freshmen and at the end of the sophomore year. Of the approximately 1200 new freshmen each year, about 300 must be given the

ACT Assessment at university expense. All 800 sophomores are tested at university expense.

Finally, the university has elected to use a relatively low-cost, standardized survey system--the ACT-ESS--to investigate student opinion and post-graduate success. All entering students are surveyed using the ACT Entering Student Survey, and all graduates are surveyed each year about a year after graduation. Finally, a sample of withdrawing students is followed up every other year and surveyed using the ACT Withdrawing Student Survey. Entering student questionnaires are administered at freshman orientation. Other surveys are administered by mail. All scoring is done by ACT, although the university purchases extra reports and tapes for local analysis. Few local analyses of these data, however, have actually been conducted.

To coordinate testing, the university grants 1/3 release time to a faculty member in sociology. Work-study students are used to support the survey effort and graduate students in education are used as test proctors for sophomore and senior examinations.

Costs for Case 3 are itemized in table 3 below:

Table 3

Case 3 - Regional Comprehensive University

Instrument Costs		
300	Freshman Tests (ACT Assessment: 900 assumed to have scores on entrance)	$2,100.00
800	Sophomore Tests (ACT Assessment)	5,600.00
1200	Freshman Interest Inventories (ACT Assessment)	3,000.00
80	Senior Field Exams (GRE)	2,320.00
40	Senior Field Exams (Professional and Pre-Professional	940.00
1200	Entering Student Surveys (ACT-ESS)	240.00
350	Non-Returning Student Surveys (ACT-ESS)	70.00
650	Alumni Surveys (ACT-ESS)	130.00
	Scoring for 2200 ACT-ESS Instruments	1,040.00
Administration Costs		
	In-Class Test/Survey Administration	
	Proctors, etc.	375.00
	Announcements, etc.	580.00
	Mailed Survey Administration (2 mailings)	1,378.00
Overhead/Analysis Costs		
	ACT-ESS Tape/Reports	270.00
	Testing/Measurement Specialist (.35 FTE)	9,625.00
	Staff Benefits	2,118.00
	Work Study Students	1,750.00
	Office Expenses	1,250.00
	TOTAL	$32,786.00

Case 4 - Mid-Sized Community College

Case 4 is a community college, located in a suburb of a major city, enrolling approximately 15,000 headcount students each term. Enrollment consists of about 3500 baccalaureate transfer students, 5000 students in various occupational and certificate programs, and the balance enrolled for one or more single courses. About half the students in baccalaureate transfer and occupational programs attend full-time, many of them at night. All other students are part-time

attenders. All students commute to the campus from within a 30-mile radius.

The primary emphasis of assessment at the college has been properly placed upon student follow-up and the assessment of educational goals. All entering program students are surveyed at registration using the NCHEMS/College Board Student Outcomes Information Service (SOIS) Entering Student Questionnaire. In addition, each year program completers and withdrawing program students are surveyed by mail using SOIS instruments. These surveys achieve approximately 70% and 45% response rates respectively. Local questions are added to all SOIS questionnaires and the institutional research office conducts analyses which link common questions on the three instruments to get a picture of student reactions to the college experience. All SOIS scoring is done by the College Board, although the college plans to develop its own computer programs to enable more detailed analysis of these instruments.

This year, reacting to statewide concerns about the quality of basic skills education, the college plans to administer the College Level Examination Program general exams in writing and quantitative skills. This will be an expensive effort and is being undertaken somewhat reluctantly. The CLEP was chosen by faculty as being the most appropriate instrument to measure general competence, and will be given to a sample of 750 second-year program students.

When the student follow-up effort was begun several years ago in response to federal VEDS requirements, the college created a half-time survey coordinator position in the office of institutional research.

As assessment has expanded, the responsibility for conducting all studies has remained with institutional research. The college has no further plans to expand this office.

Total estimated costs for assessment at Case 4 are presented in Table 4 below:

Table 4

Case 4 - Mid-Sized Community College

Instrument Costs		
750	Sophomore General Skills Exams (CLEP General)	$19,500.00
4500	Entering Student Surveys (SOIS)	675.00
1500	Former Student Surveys (SOIS)	225.00
1250	Graduate Follow-Up Surveys (SOIS)	187.50
	Scoring for 7250 SOIS Instruments	3,490.00
Administration Costs		
	In-Class Test Administration	
	Proctors, etc.	325.00
	Announcements, etc.	225.00
	Mailed Survey Administration (2 mailings)	3,693.00
Overhead/Analysis Costs		
	Tapes/Reports of SOIS Surveys	150.00
	Student Survey Coordinator (.5 FTE)	10,750.00
	Staff Benefits	2,365.00
	Office Expenses	1,500.00
	TOTAL	$43,085.50

To check the validity of each of these cost estimates, we collected actual cost data from several institutions in each category. Total costs for assessment at each of these institutions, of course, vary somewhat from the constructed estimates and from one another, both because each appropriately chooses to measure a somewhat different set of outcomes dimensions, and because the manner in which actual costs are counted and reported are different in each case. For

reasons of confidentiality, we do not report these actual costs. When adjusting for total enrollment, none, however, differs by more than 15% from our constructed estimates.

C. Some Concluding Points

Each of the cases presented above represents a distinctive match between institutional mission and characteristics on the one hand, and a particular choice of assessment instruments and methods on the other. Any cost estimate will need to be similarly tailored to fit a particular situation. In conclusion, institutions considering implementing a comprehensive assessment program, and examining the cost consequences, will need to consider the following points:

- Making full use of existing information about student learning and development can considerably reduce anticipated costs of assessment. As emerging institutional experience makes clear, colleges and universities generally collect considerable information about students; but this information is rarely centrally available. Indeed, no single person or office at the institution may know the full range of what is available. Many individual units may collect data for different purposes. For example, individual departments may collect follow-up information on their own graduates, student service offices may conduct surveys of currently enrolled students, and testing offices may administer a variety of standardized tests. A first step in constructing an assessment program is often simply to inventory such data (Ewell, 1982).

- Development of an explicit assessment program may reduce cost by focusing analytical and data collection resources, and avoiding duplication. Emerging institutional experience has also shown that student outcomes data gathering can often be inefficient due to its dispersal throughout the institution. Different units develop their own assessment instruments independently, and incur costs in doing so. Furthermore, many studies are one-shot--designed to answer a particular question or address a particular, temporary crisis. When the question is answered or the crisis passed, data gathering ceases, only to be begun from scratch when the next question arises. Central coordination of assessment can avoid such hidden costs, and may consequently involve fewer new resources than initially anticipated.

- Assessment programs using multiple data collecting methods may similarly reduce costs by providing mutually reinforcing information. Cognitive testing, for example, is expensive compared to other forms of outcomes data gathering. While there is no substitute for testing to answer ultimate questions of student learning in general education or in the major field, much can be learned by supplementing cognitive tests with less expensive kinds of data collection such as student surveys containing self-assessments of growth. If survey information can confirm the results of cognitive tests in the aggregate, expensive testing may be undertaken less widely--perhaps on a carefully selected sample of students.

- Careful tailoring of data collection to fit instructional mission can limit cost. A major potential problem with assessment, as mentioned above, is the demand to "measure everything that moves." Paying close attention to priority instructional and curricular issues in designing an assessment program involves making appropriate choices about what to measure and how to measure it. Each of the cases above, for example, places the primary weight of assessment upon a particular dimension that matches the institution's unique curriculum and mission. Each could have been quite different, and considerably more expensive, if limiting choices had not been exercised.

A final point is that the costs of assessment are in themselves of little importance without knowing the benefits. Institutions with experience with assessment are finding that these benefits often include increases in such areas as student recruitment and retention. In the long term, such benefits can involve fiscal as well as strictly educational rewards. As a result, any assessment program is properly seen not simply as a cost to be incurred, but as an investment in the institution's future--an investment which, quite properly, should be judged in the light of the return that it may bring.

Appendix A

Many commercial instruments are available for assessing student cognitive growth, reactions to college, and experiences after graduation. This appendix lists some of the most commonly used such instruments, together with the direct costs associated with purchasing and administering them.

Institutional assessment programs vary greatly in the outcomes dimensions included. The choice of dimensions (and therefore of particular instruments and emphases) will depend upon the mission, type, and size of the institution, and most of all on its distinctive instructional philosphy. Typical outcomes dimensions and the means commonly chosen to assess them are as follows:

1. General Knowledge/Skills Outcomes:	: ACT-COMP
eg. Reading/Writing/Math	: ACT Assessment
Interdisciplinary Knowledge	: GRE Comprehensive
Ability to Apply Knowledge	: CLEP Writing/Math
Critical Thinking, etc.	: Local Tests
	:
2. Discipline/Field Outcomes:	: GRE Field Exams
eg. Specific Content Areas	: CLEP Subject Tests
Research Skills	: Pre-Professional
Professional Competence	: Tests
	: Local Tests
	:
3. Student Attitudes/Values:	: ACE/UCLA - CIRP
eg. Perceptions of Environment	: ACT-ESS
Self-Assessments of Growth	: NCHEMS - SOIS
Use of Campus Resources	: UCLA/Pace - CSEQ
Educational/Career Goals	: TEX-SIS
	: Local Surveys
	:
4. Behavior After College:	: ACT-ESS
eg. Employment History/Success	: NCHEMS - SOIS
Further Education	: TEX-SIS
Evaluation of Program	: Local Surveys
Reasons for Non-Completion	:

Each of these dimensions should be carefully examined in developing a comprehensive assessment program, and costs assocated with each component estimated only after an appropriate choice has been made.

Particular instruments and their associated costs are described in the pages that follow.

ACT -- COLLEGE OUTCOME MEASURES PROJECT (COMP)

DESCRIPTION

COMP is a set of examinations designed to assess student learning in General Education. The Composite Exam involves oral and written response by students; other instruments involve written as well as aural and visual materials. Scoring of the composite is by trained faculty. The minimum order is $600.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
Composite Exam	N/A	$ 18.00*
Objective Test	N/A	$ 12.00**
Activity Inventory	N/A	$ 4.00***

* $15 for 100-499 students
$12 for 500-999 students
$10 for over 1000 students

** $10 for 100-499 students
$ 8 for 500-999 students
$ 6 for over 1000 students

*** $3.50 for 100-499 students
$3.00 for 500-999 students
$2.50 for over 1000 students

ANALYSIS/PROCESSING COSTS

Service	Fixed Fee	Unit Cost
Tape of Results	$ 20.00	$ N/A
Consulting Visit	$ 600.00	$ N/A
+ Travel Expenses		

ACT ASSESSMENT (COLLEGE ENTRANCE EXAM)

DESCRIPTION

Designed as a measure of general knowledge and skills in preparation for a college curriculum. Generally used as an entrance examination, but has been used in test-retest format to assess "value-added", or as a measure of general knowledge. Interest Inventory is a student survey designed to be administered with the Assessment.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
ACT Assessment	N/A	$ 7.00
Interest Inventory	N/A	$ 2.50

* Note: Instrument costs include processing/analysis.

ANALYSIS/PROCESSING COSTS

Costs cited above include processing and reporting.

ETS -- GRADUATE RECORD EXAMINATION PROGRAM

DESCRIPTION

Comprehensive Exams (Verbal/Quantitative) designed to assess general readiness for graduate work. Discipline/Field Exams in 30 subject areas designed to assess mastery of field content for graduate study.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
Comprehensive Exam	N/A	$ 29.00
Specific Field Exams	N/A	$ 29.00

* Note: Instrument costs include processing/analysis.

ANALYSIS/PROCESSING COSTS

Costs cited above include processing and reporting.

ETS -- COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

DESCRIPTION

Designed to assess knowledge of particular course/subject areas of college-level work. General Exams assess overall college-level skills such as mathematics and writing. Specific exams in 30 fields test mastery of content in particular course subject areas.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
General Exams	N/A	$ c. 30.00
Course/Subject Exams	N/A	$ c. 30.00

ANALYSIS/PROCESSING COSTS

Costs cited above include processing and reporting.

ACE/UCLA -- COOPERATIVE INSTITUTIONAL RESEARCH PROGRAM (CIRP)

DESCRIPTION

A survey of student attitudes, goals, and background including self-assessments of academic abilities and college choices. The freshman survey is national and can be supplemented at any college. A limited follow-up survey is also conducted nationally. Instrument costs include processing/analysis.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
Freshman Survey	175.00	$ 0.80
Follow-up Survey	300.00	$ 2.25

ANALYSIS/PROCESSING COSTS

Service	Fixed Fee	Unit Cost
Analysis Crosstabs	150.00	$ N/A
Tape of Results	60.00	$ 0.06

ACT -- EVALUATION SURVEY SERVICE (ESS)

DESCRIPTION

Student attitudinal and perceptual surveys designed to assess reactions to college, self-assessments of growth, and evaluations of services provided. Follow-up surveys include employment, graduate school attendance, and reactions to the college program.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
Entering Student	N/A	$ 0.20
Non-Returning Student	N/A	$ 0.20
Alumni Survey	N/A	$ 0.20

ANALYSIS/PROCESSING COSTS

Service	Fixed Fee	Unit Cost
Instrument Scoring	50.00	$ 0.45
Tape of Results	40.00	$ N/A
Comparative Report	50.00	$ N/A

NCHEMS/CEEB -- STUDENT OUTCOMES INFORMATION SERVICE (SOIS)

DESCRIPTION

Student attitudinal survey instruments. Items include student background, college choice, self-assessments of gain, perceptions of services, and post-enrollment information such as employment/further education.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
Entering Student	N/A	$ 0.15
Continuing Student	N/A	$ 0.15
Former Student	N/A	$ 0.15
Graduate (2 instruments)	N/A	$ 0.15

ANALYSIS/PROCESSING COSTS

Service	Fixed Fee	Unit Cost
Keypunch/Processing	100.00	$ 0.44
Tape of Results	50.00	$ N/A

UCLA/Pace -- COLLEGE STUDENT EXPERIENCES QUESTIONNAIRE (CSEQ)

DESCRIPTION

Student survey instruments designed to assess student quality of effort. Includes activity inventory, involvement with the campus, and perceptions of the college environment.

INSTRUMENT COSTS

Instrument	Fixed Fee	Unit Cost
CSEQ	N/A	$ 0.25

ANALYSIS/PROCESSING COSTS

Service	Fixed Fee	Unit Cost
Analysis/Processing/Report	150.00	$ 1.00
Consulting Visit + Travel Expenses	600.00	$

APPENDIX B

Procedures used in this study are embodied in a Lotus 1-2-3 spreadsheet that contains all relevant direct cost parameters. The actual estimation procedure using this template consists of the following steps:

1. A list of available instruments tied to assessment dimensions helped identify what measures were appropriate to each case. Examples of particular dimensions include cognitive tests of general education and/or the major field, student attitudes and values, and behavior after college.

2. Available options for using or constructing instruments are included in the estimation template. Appropriate choices were selected and their cost consequences explored.

3. The template was then used to estimate costs for administering tests and surveys. Appropriate overhead costs associated with testing were then built into the estimate.

4. The obtained total estimates were then checked for consistency with available data on actual costs incurred for assessment at similar institutions.

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